

LISTING OF CLAIMS

1. (Currently Amended) A radio frequency device having a null or quasi-null intermediate frequency, intended to receive or transmit a radio frequency signal whereof the transmit or receive frequency is part of a frequency range subdivided into frequency channels, wherein it comprises on the same electronic chip frequency transposition means connected to a local main oscillator, and in that the main local oscillator is incorporated inside a main phase locked loop receiving a first reference frequency that is supplied by a voltage-controlled auxiliary oscillator, itself incorporated into an auxiliary phase locked loop receiving a second reference frequency that is less than the first reference frequency output from the auxiliary oscillator, wherein the first reference frequency of the main loop is a) less than the output frequency of the main oscillator, b) greater than 10 times the frequency spacing of the frequency channels reduced to the output frequency of the main oscillator, and c) removed from a frequency which is a whole integer multiple of the transmit or receive frequency, wherein ~~a~~ the spacing between the first reference frequency of the main loop and a whole integer multiple of the transmit or receive frequency is at least the cut-off frequency of the main loop.

2. (Previously Presented) The device as claimed in Claim 1, wherein the auxiliary loop comprises a whole divider and in that the reference frequency of the auxiliary loop is less than or equal to, preferably equal to, the frequency spacing of the frequency channels if the transmit or receive frequency for such frequency spacing were reduced to the first reference frequency of the main loop.

3. (Previously Presented) The device as claimed in Claim 1, wherein the first reference frequency of the main loop is greater than a twentieth of the output frequency of the main oscillator.

4. (Previously Presented) The device as claimed in Claim 1, wherein the range of frequencies to which the send or receive frequency belongs is in the vicinity of 900 MHz or 1800 MHz (corresponding to the GSM or DCS standard), the first reference frequency of the main loop being equal to 450 MHz, whereas the second reference frequency of the auxiliary loop is equal to 50 kHz.

5. (Previously Presented) The device as claimed in Claim 1, wherein the electronic chip also comprises the two phase locked loops.

6. (Previously Presented) The device as claimed in Claim 5, wherein it is integrally produced on said electronic chip.

7. (Previously Presented) A component of a wireless communications system, wherein it incorporates a device as claimed in Claim 1.

8. (Previously Presented) The component as claimed in Claim 7, wherein it forms a cellular mobile telephone.

9. (Previously Presented) A local oscillator, comprising:

a first phase lock loop receiving a first reference signal and incorporating a first voltage controlled oscillator which generates a second reference signal; and

a second phase lock loop receiving the second reference signal and incorporating a second voltage controlled oscillator which generates a local oscillator output signal;

wherein the first reference signal has a frequency equal to a frequency spacing of channels of an RF signal generated from the local oscillator output signal, if a frequency of the local oscillator output signal were reduced to a frequency of the second reference signal, so that the first voltage controlled oscillator operates at a frequency for the second reference signal which is in a non-contaminated zone with respect to operation of the second voltage controlled oscillator and is thus not subject to being perturbed.

10. (Previously Presented) The local oscillator of claim 9 wherein the second reference signal has a frequency that is less than a frequency of the local oscillator output signal, and the first reference signal has a frequency that is less than the second reference signal frequency.

11. (Previously Presented) The local oscillator of claim 10 wherein the second reference signal frequency is greater than N times the first reference signal.

12. (Previously Presented) The local oscillator of claim 11 wherein N equals ten.

Claims 13-14. (Canceled).

15. (Previously Presented) The local oscillator of claim 9 wherein the non-contaminated zone is frequencies which are not harmonics or mixes of useful signals.

16. (Previously Presented) The local oscillator of claim 11 wherein the second reference signal frequency is greater than $1/M$ of the local oscillator output signal frequency.

17. (Previously Presented) The local oscillator of claim 16 wherein M is twenty.

18. (Previously Presented) The local oscillator of claim 11 wherein the second reference signal frequency is large enough to sharply reduce an effect of pulling as to the second voltage controlled oscillator.

Claims 19-24. (Canceled).

25. (Currently Amended) A radio frequency device having a null or quasi-null intermediate frequency, intended to receive or transmit a radio frequency signal having a frequency that is part of a frequency range subdivided into frequency channels, comprising:

a frequency transposition mixer;

a local main oscillator connected to the mixer;

a main phase locked loop incorporating the main oscillator (VCOP) receiving a first reference frequency;

a voltage-controlled auxiliary oscillator (VCOA) supplying the first reference frequency;

and

an auxiliary phase locked loop incorporating the voltage controlled auxiliary oscillator receiving a second reference frequency;

wherein the second reference frequency is less than the first reference frequency; and

wherein the first reference frequency is less than an output frequency of the local main oscillator, is greater than ten times a spacing of the frequency channels reduced to the output frequency of the main oscillator, and is removed from a frequency which is a whole integer multiple of the frequency for the radio frequency signal, wherein ~~a~~ the spacing between the first reference frequency of the main loop and a whole integer multiple of the transmit or receive frequency is at least the cut-off frequency of the main loop.

26. (Previously Presented) The device as claimed in Claim 25, wherein the auxiliary phase locked loop comprises a whole divider and in that the second reference frequency of the auxiliary loop is less than or equal to the spacing of the frequency channels if the radio frequency signal for such spacing were reduced to the first reference frequency.

27. (Previously Presented) The device as claimed in Claim 25, wherein the first reference frequency of the main phase locked loop is greater than a twentieth of the output frequency of the local main oscillator.

28. (Previously Presented) The device as claimed in Claim 25, wherein the range of frequencies to which the frequency of the main oscillator belongs is in the vicinity of 900 MHz or 1800 MHz, the first reference frequency is about 450 MHz, and the second reference frequency is about 50 kHz.

29. (Previously Presented) The device as is claim 25 wherein the device is fabricated as an integrated circuit chip.

30. (Previously Presented) The device as claimed in Claim 29, wherein it is integrally produced on said electronic chip.

31. (Previously Presented) The local oscillator of claim 9 wherein the second reference signal has a frequency which is an integer multiple of a cut-off frequency of the second phase lock loop.